

**Nissei Sangyo America, LTD.**

**Greyscale Display**

**User's Manual**



# ***Table of Contents***

<b><i>Introduction.....</i></b>	<b><i>1</i></b>
Features.....	1
Overview of the User's Manual.....	1
<b><i>Chapter 1 - Unpacking and Set-Up.....</i></b>	<b><i>2</i></b>
Unpacking Your Display.....	2
Positioning Your Display.....	2
Connecting the Cables.....	2
Your Display's Controls.....	2
<b><i>Chapter 2 - Using Your Display.....</i></b>	<b><i>3</i></b>
Turning On Your Display.....	3
Nine Tips For Prolonged Life.....	3
<b><i>Chapter 3 - Reference.....</i></b>	<b><i>5</i></b>
Troubleshooting.....	5
<b><i>Appendix A</i></b>	
Specifications.....	6
<b><i>Appendix B.....</i></b>	<b><i>9</i></b>
Interface Cable Specifications.....	9



## ***Introduction***

Congratulations on your purchase of the NSA Greyscale Display. The Greyscale Display provides an expansive image area that is ideal for page layouts, large spreadsheets and intricate drawings, or displaying multiple windows and applications.

### ***Features***

NSA has designed the Greyscale Displays using unsurpassed standards for image clarity and crispness, providing a paper-like, flicker-free image that maintains superior brightness, contrast, and focus across the entire screen.

### ***Overview of the User's Manual***

This manual explains how to set up the Greyscale Display. The manual is divided into three chapters and includes a table of contents and an index.

**Chapter 1.....Unpacking** explains the proper way to remove the display from its packaging. It also presents a set-up procedure explaining how to position the display, connect the cables, and use its controls.

**Chapter 2.....Using Your Display** explains turning on and using your display and offers nine tips for the prolonged life of your display.

**Chapter 3.....Reference** contains a troubleshooting section.

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For emphasis, the two **Warnings** contained in this manual are repeated below.

**Warning:** Position your Greyscale Display so there is at least an inch (3 cm) of space between the display and any Macintosh to provide adequate ventilation and avoid overheating. If you want to position the display on top of your computer, you should use a display stand. A Greyscale Display is heavy; if you place it directly on a Macintosh II computer, you could damage the computer's plastic case.

**Warning:** To prevent electrical shock, do not remove the cover of your Greyscale Display. No user-serviceable parts are inside.

## Chapter 1

### *Unpacking and Set-Up*

This manual pertains to the installation and operation of the Greyscale Display:

Operationally, the Greyscale Displays are identical. The controls and connections are the same for all displays, and the instructions in this manual apply to all units. Refer to the technical specification appendixes for specific information on each display.

#### *Unpacking Your Display*

When you first open your display, make sure that you have everything needed to set-up your display system. Unpack all of the components and compare them against the included packing list. If you are missing any of these items, contact the Reseller from whom you purchased your display.

We recommend saving your display-shipping box. It is advantageous to use the original packaging for shipment or relocation of your display. Substitute packaging may not provide adequate protection.

#### *Positioning Your Display*

Position your display on either side of your Macintosh or on a stand over the Macintosh. A Macintosh display stand should be available from your Reseller.

**Warning:** Position your Greyscale Display so there is at least an inch (3 cm) of space between the display and any Macintosh to provide adequate ventilation and avoid overheating. If you want to position the display on top of your computer, you should use a display stand. A Greyscale Display is heavy; if you place it directly on a Macintosh II computer, you could damage the computer's plastic case.

#### *Connecting the Cables*

1. Connect the DB-15 connector of video cable to the interface card installed in your computer or to your built-in video connector. Tighten the connector's thumb screws for physical security and to reduce electronic magnetic emissions.
2. Connect the power cable to the POWER IN socket in the back panel and plug the other end into a grounded power source.

#### *Your Display's Controls*

Your Greyscale Display has three front panel controls.

\* **Brightness** allows you to adjust brightness and distinguish between dark gray and black. You should set the brightness so that parts of images that are pure black appear black on your screen. If the brightness is set too low, the darkest colors will fall into black; if the brightness is set too high, pure black will become gray.

\* **Contrast** allows you to adjust the contrast of the screen image (that is, the scaling of the range between the brightest and darkest colors). Turn the contrast knob counter clockwise until you're comfortable with the contrast. Because the two controls interact, you may need to fine tune your brightness setting.

\* **Power Switch** which turns the display on and off. Pressing it upward turns on your display and the power-indicating green LED. The LED will remain illuminated when your display is in its power-saving mode.

## Chapter 2

### *Using Your Display*

#### **Turning On Your Display**

*To turn on your Greyscale Display.*

1. Press the Greyscale Display Power Switch to the ON position (upward). The power indicator will illuminate.
2. Turn on your Macintosh. If you have not installed your Macintosh System Software yet, install this software before continuing.

#### **Nine Tips for Prolonged Life**

*To increase the life of your display,*

##### **1. Operate your display only at a comfortable brightness.**

Do not adjust the brightness to its maximum setting for continuous operation. Running your display with the external-brightness adjustment at its maximum setting, especially when new, will result in an image that will eventually appear less clear. It will also reduce the life of your display. Image clarity on your display is factory set at a specific brightness level for optimum clarity. The internal maximum-brightness adjustment is set above the optimum level to give your display a longer life. To properly adjust the brightness of display, turn both the brightness and the contrast controls to the maximum, fully clockwise. Turn the brightness control down (counterclockwise) until the illuminated margins disappear. Then turn the contrast to achieve your most comfortable viewing level.

##### **2. Turn the display off when you are finished.**

Any display will age when power is applied, whether or not an image is displayed or screen saver is operating. You can reduce your overall power consumption and extend the life your display by turning it off. Additionally, special power cables are available from electronics stores that will enable you to power your display from most Macintosh computers so that it will go off when you select Shut Down from the Special Menu.

##### **3. Position your display away from bright light.**

This will reduce the amount of light that is reflected from the screen. To reduce glare, overhead light should radiate from 50 to 90 degrees directly over your screen. Baffle light from other sources. Your display should be high enough (or you, low enough) so that your eyes are level with the top edge of the screen. Sit at least 2 feet away from your screen.

##### **4. Do not expose your display to heat.**

Excess heat from sunlight or radiators can damage its electronic components and/or the case. Keep it away from heat sources. However, your display will generate some heat of its own, as will most electronic equipment. Do not become concerned if your display becomes warm.

##### **5. Move your display if radio frequency interference is suspected.**

See the appendix in your user's manual on radio frequency interference for additional information and corrective suggestions. If you suspect electromagnetic interference, move your display 6 to 12 inches from its original position and you should see an improvement.

##### **6. Allow at least one inch between your display and other equipment.**

This will allow the necessary amount of air to enter and flow through the ventilation slits.

**7. Do not put things on top of your display.**

This will cause the display to overheat. Keep papers and other materials off the display. Allow at least 6 inches above the display for adequate air and display swivel movement.

**8. Clean your display case and screen with a damp, lint-free cloth or paper towel.**

A household glass cleaner reduced with water to 33% of its strength (for example, 1/3 Windex and 2/3 water) and sprayed onto a cloth can be used to remove fingerprints, dust, or grease. Do not spray a cleaner or solution directly onto the display screen or case. Do not use solvents, full-strength cleaners, or abrasives that may damage the surface of your display.

**9. Do not place tape, self-adhesive notes, or other adhesives on the face of your display.**

The various adhesives may damage the face of your screen, especially a screen with an antiglare coating.

The overall line-straightness, picture-size and position of the display were factory set. The settings were made with the display fully warmed (at least 30 minutes) and with the front of the tube facing magnetic "East." You may, however, observe slight variations in the geometry of your display's image when rotating the display. If you observe a distortion or movement of the display's image, check, move, and compensate for the following:

- \* Large metal objects near the display, e.g.: metal posts
- \* High-voltage power or transformer near the display or magnetic activity on the other side of a wall
- \* A large disk drive nearby
- \* An adjacent, second display



## Chapter 3

### *Reference*

This chapter contains a troubleshooting section.

### *Troubleshooting*

If you are **not** getting an image on your Greyscale Display, take a few minutes to try to isolate the difficulty. Following these few simple procedures will verify whether there is, in fact, a problem.

**Warning:** *To prevent electrical shock, do not remove the cover of your Greyscale Display. No user-serviceable parts are inside.*

\* Verify that the **power switches** on your display and on your computer are both in the ON position and that all power cables in your system are properly connected. Be sure the LED light is on.

\* Check that the **display cable is securely connected** to the computer. Refer to *Connecting the Display Cable* for specific information.

\* Your display may be in its power-saver mode. **Move your mouse or press a keyboard key.** Depending on the time since your display was last at full power, it may take up to 10 seconds for an image to reappear.

\* Are the **brightness** and **contrast knobs** turned completely off? Try **adjusting the brightness and contrast knobs.**

\* If neither your Greyscale Display nor your computer works, check to see if the power to the wall outlet has been interrupted.

## ***Appendix A: Specifications***

### **Two Page Display/20gs Specifications**

#### **CRT**

CRT size	20 inches diagonal
Image size	Horizontal 356 mm (14.0 in)
	Vertical 270 mm (10.6 in)
Resolution	(H) 1152 x (V) 870 pixels
Density	82 dpi
Warm up	20 minutes to meet all specifications

#### **Video**

Analog signal	RS-343
Horizontal scan rate	68.68 kHz
Vertical refresh rate	75 Hz
Controls	Brightness, Contrast and Power

#### **Physical Attributes**

Width	461 mm (18.0 in)
Height	397 mm (15.5 in)
Depth	403 mm (15.8 in)
Weight	25 kg (55 lbs)
	Tilt/Swivel included
	LED Power Indicator

#### **Environmental**

Operating conditions	10 to 35 degree C
Humidity, non-condensing	20% to 80%
Operating altitude	3.000 m (10,000 ft.) max

#### **Power**

Input voltage range	100 to 240 VAC, self-configuring
Frequency	50/60 Hz, $\pm 3$ Hz
Current	1.7 amps, max
Consumption	100 watts nominal, 135 watts max, 12 watts using Power Saver
Cable	Power cable included

## Two Page Display/21 gs Specifications

### CRT

CRT size	21 inches diagonal
Image size	Horizontal 394 mm (15.5 in) Vertical 298 mm (11.7 in)
Resolution	(H) 1152 x (V) 870 pixels
Density	74 dpi
Warm up	20 minutes to meet all specifications

### Video

Composite analog signal	RS-343
Horizontal scan rate	68.68 kHz
Vertical refresh rate	75 Hz
Controls	Brightness, Contrast and Power

### Physical Attributes

Width	508 mm (20.0 in)
Height	490 mm (19.3 in)
Depth	432 mm (17.1 in)
Weight	27 kg (60 lbs)

### Environmental

Operating conditions	10 to 35 degree C
Humidity, non-condensing	20% to 80%
Operating altitude	3,000 m (10,000 ft.) max

### Power

Input voltage range	100 to 240 VAC, self-configuring
Frequency	50/60 Hz, $\pm 3$ Hz
Current	1.7 amps max
Consumption	100 watts nominal, 135 watts max, 12 watts using Power Saver
Cable	Power cable included

## Full Page Display

### CRT

Display size	Diagonal: 15 inches
Phosphor	P104
FaceTreatment	Polished
Image size	<b>Horizontal:</b> 208 mm (8.2 in)
	<b>Vertical:</b> 279 mm (11.0 in)
Resolution	(H) 640 x (V) 870 pixels
Pixel density	78 dpi
Warm-up time	30 minutes to meet specifications

### Video

Video signal	Analog RS-343A
Horizontal scan rate	68.9 kHz
Vertical refresh rate	75.0 Hz
Controls	Brightness, Contrast, Power On/Off
Connector	HD-15
Cable	HD-15 to DB-15 (Macintosh end)

### Display Physical Attributes

Width	315 mm (12.4 inches)
Height	438 mm (17.4 inches)
Depth	355 mm (14.0 inches)
Weight	11.3 kg (25 lbs)

### Environmental

Operating temperature	10 to 35 degree C
Humidity, noncondensing	20% to 80%
Operating altitude	3,000 meters (10,000 ft.) max

### Power

Input voltage range	100 to 240 VAC, self-configuring
Frequency	50/60 Hz, $\pm 3$ Hz
Current	0.3 amps
Consumption	3.5 watts maximum; 17 standby
Connector and cable	NEMA type-15 socket & cord

## ***Appendix B: Interface Cable Specifications***

The following table lists the pin specifications of the interface cable supplied with the Greyscale Displays.

*Pin numbers for the video interface cable (Macintosh end)*

<b>Pin</b>	<b>Signal</b>
1	unused
2	unused
3	unused
4	ID1
5	unused
6	unused
7	ID2
8	unused
9	Video In
10	ID3
11	Ground
12	Vertical Sync
13	unused
14	Ground
15	Horizontal Sync

**Important:** *To comply with FCC regulations, a shielded interface cable, such as that included with the display, must be used in conjunction with the Greyscale Display.*



## **FOR USA CUSTOMERS ONLY LIMITED WARRANTY**

Nissei Sangyo America, Ltd. Warrants this monitor to be free from defects in material and workmanship for 12-months from the date you purchased it from your authorized Nissei Sangyo America dealer. In the event of a defect during this 12-month period, Nissei Sangyo America will, at its option, repair or replace the monitor at no charge except as set forth below.

Nissei Sangyo America may repair your monitor with new or reconditioned parts or replace it with a new or reconditioned monitor of the same kind, and any replaced monitors or parts become Nissei Sangyo America's property.

This limited warranty does not cover damage caused by abuse, accident, disaster, misuse, mishandling, mispackaging or shipping improper installation, unauthorized repair or modification, or failure to follow the manufacturer's instruction with respect to the proper handling, operation, installation, service and maintenance of the monitor.

To obtain warranty service call 1/800-536-NSA1(6721). To obtain a return authorization and the location of your NSA service center or return the monitor to the dealer from whom you brought it. If you choose to ship ... container (or equivalent packaging), pay shipping charges, and enclose a copy of the proof of purchase date with the monitor. For additional information, please write to:

Nissei Sangyo American, Ltd.

100 Lowder Brook Drive Suite 2400, Westwood, MA. 02090-1124

NEVER open the monitor cabinet. If the monitor is not operating properly, contact NSA service center (Call 1-800-536-NSA1-6721). Do not open the monitor housing under any circumstances.

By opening the monitor housing you will expose yourself to high voltage and possible severe electrical shocks, and void all warranties.

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS MONITOR IS LIMITED TO THE 12-MONTH DURATION OF THIS WRITTEN WARRANTY. ALL WARRANTIES SET FORTH IN THIS WARRANTY ARE LIMITED TO ONE YEAR FROM THE DATE OF PURCHASE. NO WARRANTIES WHATSOEVER WILL COVER THIS MONITOR BEYOND ONE YEAR. HOWEVER, SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IF THIS MONITOR IS DEFECTIVE, YOUR ONLY REMEDY IS REPAIR OR REPLACEMENT, AS DESCRIBED ABOVE. UNDER NO CIRCUMSTANCES WILL NISSEI SANGYO AMERICA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING ANY LOST SAVINGS, LOST PROFITS, OR ANY OTHER DAMAGES, CAUSED BY THE USE OF THIS MONITOR OR INABILITY TO USE IT, EVEN IF THE DEALER OR NISSEI SANGYO AMERICA HAS BEEN ADVISED OF SUCH LIABILITY OR OTHER CLAIMS.





# RECORD OF SALE, AWARD OR LEASE OF DISPLAY MONITOR

AS REQUIRED BY FEDERAL REGULATION 21 CFR SUBCHAPTER J

## SOLD, AWARDED, LEASED BY

(NAME OF TRANSFEROR)*		
(MAILING ADDRESS)		
(CITY)	(STATE)	(ZIP NO.) 

## SOLD, AWARDED, LEASED TO

(NAME OF PURCHASER)**		
(ADDRESS)		
(CITY)	(STATE)	(ZIP NO.) 
(SIGNATURE)		

(FOR TRANSFEROR)

(MODEL NUMBER)

(SERIAL OR IDENTIFICATION NO.)  
| | | | | | | |

(DATE OF SALE, ETC.)  
MONTH | DAY | YR.  
| | | |

## INSTRUCTIONS

This card must be filled in duplicate by transferor at the time of sale to final consumer. First copy to be retained by transferor and second copy to be mailed to Nissei Sangyo America, Ltd.

\*Person selling, awarding or leasing a display monitor completes a separate form for each display monitor.

\*\*Purchaser means the first person who, for value, or as an award or prize, acquires an electronic product for purposes other than resale, and also includes a person who leases an electronic product for purposes other than sub-leasing.

**Nissei Sangyo America, Ltd.**

100 Lowder Brook Drive Suite 2400 Westwood, MA 02090-1124